Editorial

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The most recent issue of Mind and Matter was composed of articles presenting “kinds of time” from various interdisciplinary perspectives. This theme continues in the present issue, the contents of which can hardly be better characterized than by “more kinds of time”. Some of the articles in this issue were stimulated by contributions to the preceding one, some were submitted independently.

A better understanding of time is of apparently timeless significance. Besides its status in the sciences and humanities, it is an everyday background to our lives, and at the same time it is one of the great riddles of our existence. Last but not least, the tension between physical time and experienced time represents a focal issue in the relationship between mind and matter.

Henri Bergson is known as the pioneer of a temporal concept which stands in stark contrast to the clock time of basic science. He called it duration (durée in French), and from the perspective of clock time it can be understood as an extended now, fading away toward past and future between which it is situated. Bergson’s duration, related to the experience of the present, is a fundamental element in process thinking. It also features in Whitehead’s philosophy or more recent approaches such as those by Hartshorne, Lucas, or Rescher.

The opening article of this issue is by Pete Gunter, who addresses Bergson’s concepts of habit memory and spontaneous memory based on the notion of inner duration. Gunter’s main focus is to show how Bergson’s distinction anticipates a number of directions of research in modern psychology and cognitive neuroscience since the 1970s which reformulate and refine Bergson’s basic insights. The article concludes with ideas about creative imagination and psychotherapeutic implications that can be gained from Bergson’s work put in contemporary context.

The article by Stephen Robbins also expands on Bergson’s philosophy of time. Its overall scope, however, is different from Gunter’s: Robbins is concerned with the problem of qualia, subjective experiences that play a central role in the hard problem of consciousness as Chalmers formulated it back in the mid 1990s. The author criticizes the classic metaphysical foundation of science after Galilei and Descartes as essentially guided by spatial extension and proposes Bergson’s temporal metaphysics as an alternative. This leads him to consider form, viewed as a quality of an undivided field of flux, as a basic kind of qualia.
The metaphysical outlook that Robbins presents is based on Bergson’s idea of a duration with finite extension which is not infinitely divisible. While the universal flow is undivided, all processes offer varieties of time scales at which they can be considered. Scale invariance, in this picture, entails that all scales are relevant, and depending on the considered scale the process looks different. Undivided flow entails a fresh look at Zeno’s paradoxes and can be related to Gibson’s ecological psychology. It suggests to address the mind-matter problem from a temporal rather than substance-based point of view.

A process-philosophical perspective is also the cardinal point in the work of Jason Brown, clinical professor of neurology at the New York University Medical Center for many years. His early work on aphasia led to a process approach in which language, action, perception, memory, emotion and other mental activities were interpreted in a dynamic and unifying manner. Brown’s account of microgenesis, the emergence of a mind/brain state within an extended present, is unique among the many attempts to move toward a coherent understanding of consciousness in all its facets.

David Bradford, himself a neuropsychologist, conducted interviews with Brown which provide inspiring background material to Brown’s numerous publications. The interviews start with early influences in his career – again with Bergson as a major force. The second theme is a comparison of microgenesis with basic principles of phylogenetic evolution and ontogenetic development – an evo-devo related account of how mind/brain states arise. The interviews conclude with how Brown conceives of the nature of mind/brain states, including remarkable clinical evidence for the notion of an extended present without intrinsic structure.

Maurice de Gosson and Basil Hiley present a formal account of the idea of a universal flow (similar to Robbins’ proposal) in terms of David Bohm’s notion of the holomovement, which is of pivotal significance in his concept of the implicate order. Bohm’s holomovement refers to a level of reality in which the mental and the material are undivided in an unbroken whole conceived of as flux. Based on recent insights in mathematical physics, the authors discuss an abstract algebraic description of the holomovement from which both classical and quantum dynamics can be derived as projections.

Large parts of de Gosson and Hiley’s paper offer mathematical arguments which, to be sure, not all readers will be familiar with: a key move is to study flows as mappings within symplectic and metaplectic spaces. Using an important recent (1985) result due to the Russian mathematician Mikhael Gromov, partial flows can be identified which characterize subtotalities of the holomovement, and these subtotalities contain the empirically accessible “quasi-local, semi-autonomous objects” of physics. This way of thinking, the authors suggest, may serve as a blueprint for
future speculations of to understand the distinction of the mental and the physical as explications of an implicate order.

The paper by Laura Felline and Guido Bacciagaluppi addresses another focus at which quantum theory makes contact with mind-matter issues: the so-called many-minds interpretation of quantum theory. It derives from the many-worlds account which interprets each measurement as a bifurcation of a world into many. The many-minds interpretation, originally due to Hans-Dieter Zeh in 1970, posits that the distinction between worlds should be made at the level of the mind of an individual observer. Felline and Bacciagaluppi mainly refer to a later version of the many-minds account by David Albert and Barry Loewer in 1988.

In particular, they investigate what kind of supervenience of the mind on the body is implied by Albert and Loewer’s account. One way to read their work is that it violates supervenience (and physicalism), leading to a strict dualism of the mental and the material. A special consequence of lacking supervenience is the “mindless hulk” problem: a component of A’s brain state that is inhabited by A’s mind may be witnessing an uninhabited (mindless) component of B’s brain state. The authors discuss how this problem is related to the locality or nonlocality of minds, and it would be interesting to extend this discussion into the domain of temporal nonlocality.

Robert Bishop concludes this issue with a review of Thomas Nagel’s recent book *Mind and Cosmos*. Its provocative subtitle, *Why the Materialist Neo-Darwinian Conception of Nature Is Almost Certainly False*, has led to heated reactions since its publication a little more than a year ago. In his book Nagel does not only argue against plain reductive physicalism and in favor of some (not further specified) neutral monism – he also asks for a revitalization of the idea of teleological elements in evolution.

Bishop tries to set Nagel’s views and those of his critics in perspective and suggests refined arguments for particular themes. One of them is the fact that all basic laws of physics are time-reversal invariant, so where there is efficient (forward) causation, there is also final (backward) causation, hence teleology. Another one is that Nagel’s arguments on evolution are based on the traditional modern-synthesis picture disregarding modern developments such as epigenetics. Finally, there are various kinds of neutral monism with different problems and potentials, which should be distinguished in future work on how our minds are related to the cosmos in which they evolved.

For instance, there are conceptions of a psychophysically neutral metaphysics in which there is neither space nor time. Bohm’s holomovement as mentioned above is an example. Much less technical, and maybe more intuitively appealing for non-mathematicians, is the following notable insight of the Swiss novelist Max Frisch, quoted from his 1946 diaries (translated by HA):
Time? It would be just a magic tool unfolding and making visible our essence by disentangling life, the omnipresence of all possibilities, into successive stages; only therefore it seems like a transformation to us, and therefore it urges us to assume that time, the successive, is not essential but apparent, an ancillary tool, an unwind that shows us in succession what actually is interleaved, a simultaneity which we cannot perceive as such as we cannot perceive the colors of light when its rays are not refracted and spectrally decomposed.